Ananthu Rajendran Pillai

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Skills

Programming: Python, SQL, C++, MATLAB

Frameworks & Libraries: PyTorch, Scikit-learn, OpenCV, Pandas, NumPy, Matplotlib, LangChain, Hugging Face

Tools & Others: Git, Linux, LaTex

Work Experience

Energy Research Institute @ NTU, Singapore Mar 2024 - Present

Research Intern

- Enhanced an ML-based Model Predictive Control (MPC) system for building management, achieving a 25–40% improvement in energy efficiency.
- Designed and implemented robust data pipelines for training and validating predictive models using Python, PyTorch, and Scikit-learn.
- Collaborated with Ngee Ann Polytechnic to develop system architecture and database solutions, ensuring seamless integration of MPC algorithms.
- Leveraged technologies including Linux, MySQL, NumPy, and Pandas to ensure scalability and performance.

Schneider Electric, Coimbatore, India Jul 2022 - Aug 2023

Electromechanical Design Engineer

- Spearheaded R&D initiatives for the TFTQ range of low-voltage switchboards, focusing on design optimization and lifecycle management.
- Developed an innovative closed-door operation (CDO+) solution for TFTQ boards (IP54 rating), contributing to a 20% increase in orders while ensuring IEC 61439 compliance.
- **Online Thermal Monitoring:** Integrated temperature and humidity sensors into switchboards for real-time monitoring and enhanced reliability.
- Utilized design tools such as PTC Creo Parametric and Ansys Fluent to validate and optimize product performance.

Education

Nanyang Technological University, Singapore Jan 2024 - Jul 2025

M.Sc. in Computer Control and Automation ***CGPA: 4.42/5.00***

Relevant Coursework: Genetic Algorithms & Machine Learning, Machine Vision, Robotics & Intelligent Sensors, AI & Data Mining, System Analysis, Neural Networks & Deep Learning, Natural Language Processing.

College of Engineering, Trivandrum Aug 2018 - Jul 2022

B.Tech. in Electrical and Electronics Engineering ***CGPA: 9.71/10.00***

Relevant Coursework: Signals & Systems, Network Analysis, Linear algebra, Probability & Statistics, Calculus.

Projects

AutoBrick: Semantic Mapping for Smart Buildings

- Created an automated solution to convert HVAC/service building drawings into Brick schemas.
- Focused on data collection, preprocessing, and algorithm refinement to reliably parse and label building drawings.
- Addressed data limitations through targeted augmentation and iterative model tuning, with plans to extend the approach to architectural (IFC) drawings.

DarkMotion: Human Action Recognition in Low Light Conditions

- Developed an end-to-end system to classify short (2-3 seconds) video clips that capture human actions (*jump, run, sit, stand, turn, walk*) under low light conditions.
- Constructed a traditional machine learning pipeline involving frame sampling, feature extraction, normalization, and classification using Naive Bayes and Logistic Regression.
- Integrated state-of-the-art deep learning techniques by exploring Vision Transformer models to enhance feature representation and classification robustness, and performed comparative analysis between both models.

Extracurricular

- **NTUGSA Administration Subcommittee Member:** Organized volunteering events and team bonding sessions.
- **National Service Scheme (NSS) Volunteer:** Completed 240 hours of community work including surveys, educational sessions for children, awareness classes, and cleaning drives.